

Graphing Planes in Three-Space

$$Ax + By + Cz = D$$

2 variables the graph is a line

3 variables the graph is a plane

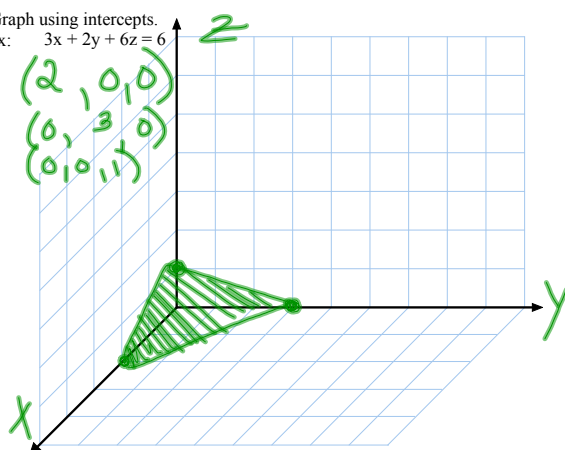
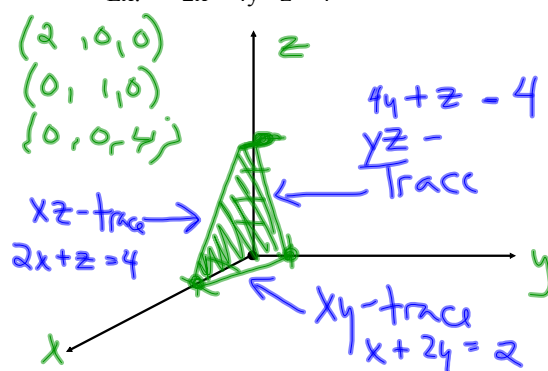
Example

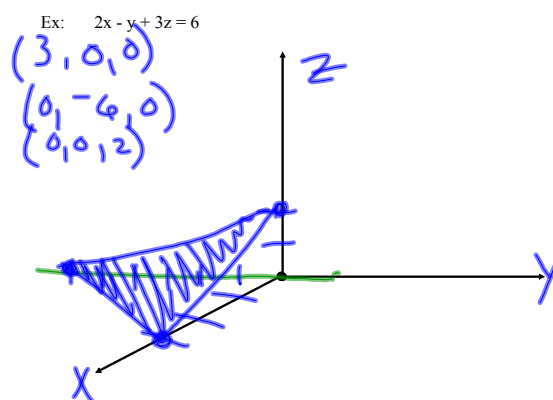
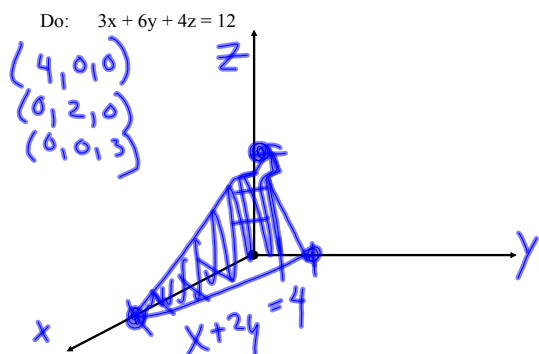
$$2x + 2y + z = 8$$

$$\left(\frac{1}{2}, 2, 3\right)$$

$$(4, -1, 2)$$

$$\begin{matrix} (0, 4, 0) & (2, 2, 0) & (1, 1, 4) \\ (4, 0, 0) & (0, 2, 4) & (\frac{1}{2}, \frac{1}{2}, 6) \\ (0, 0, 8) & (3, 1, 0) & (2, 0, 4) \\ & & (1, 3, 6) \end{matrix}$$

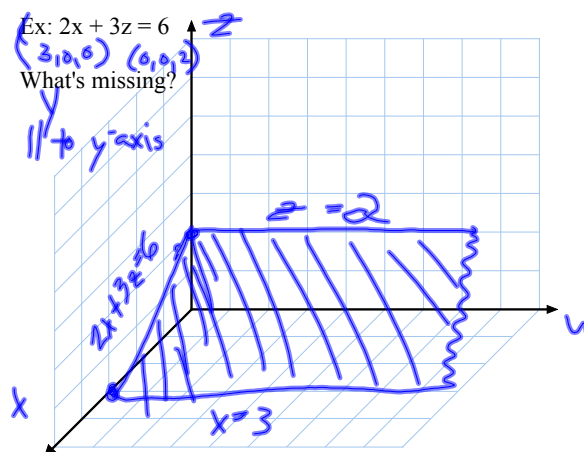
Graph using intercepts.
ex: $3x + 2y + 6z = 6$ Ex: $2x + 4y + z = 4$ 



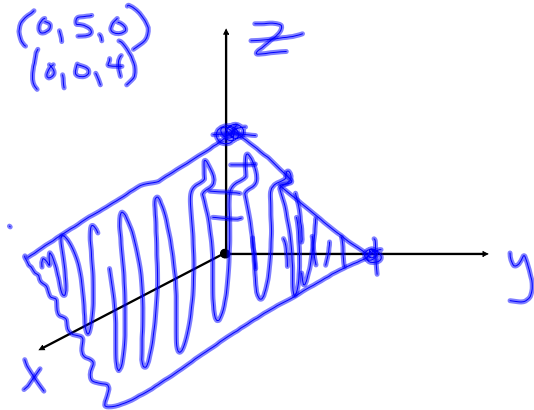
2-D

$x = 3$ vertical
 y is missing \parallel to y -axis

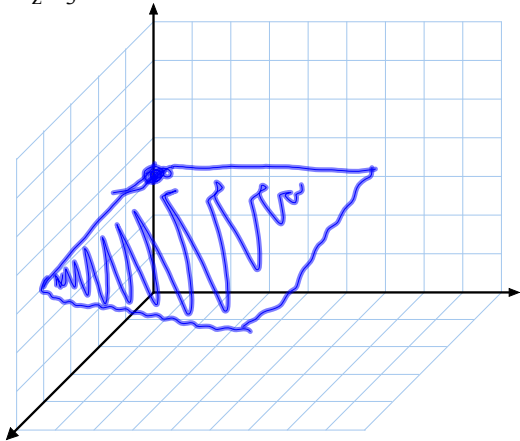
$y = 5$ horizontal
 x is missing \parallel to x -axis



Ex: $4y + 5z = 20$



Ex: $z = 3$



Ex: $6x - 5y = 0$

